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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,906	09/11/2003	Anand G. Dabak	TI-28441B	4191
23494	7590	06/13/2005	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265				CORRIELUS, JEAN B
ART UNIT		PAPER NUMBER		

2637

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/659,906	DABAK ET AL.
	Examiner	Art Unit
	Jean B. Corrielus	2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 9/11/03&10/7/03.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 23-65 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 23-65 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/26/04&10/10/03</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Priority

1. An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence(s) of the specification or in an application data sheet by identifying the prior application by application number (37 CFR 1.78(a)(2) and (a)(5)). If the prior application is a non-provisional application, the specific reference must also include the relationship (i.e., continuation, divisional, or continuation-in-part) between the applications except when the reference is to a prior application of a CPA assigned the same application number.

Examiner's comment

2. The first two pages of the amendment, dated 10/7/03, are missing. It is requested that such amendment (first two pages) be refilled.

Claim Objections

3. Claim 23, line 12, "an" should be "and", in addition, "the first" should be replaced by "the plurality of first estimate signals"; line 13, "second estimate signals" should be "and the second estimate signal". Appropriate correction is required.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 34-65 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6-13 of U.S. Patent No. 6,643,338. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 34 is substantially encompassed by claim 6 except for some minor modifications such as claim 34, line 1, recites an apparatus while claim 6, line 1, recites a circuit and so on.

Similarly,

Claim 35 is substantially encompassed by claim 7.

Claim 36 is substantially encompassed by claim 8

Claim 37 is substantially encompassed by claim 9

Claim 38 is substantially encompassed by claim 10

Claim 39 is substantially encompassed by claim 11

Claim 40 is substantially encompassed by claim 12

Claim 41 is substantially encompassed by claim 13

Claim 42 is substantially encompassed by claim 6

Claim 43 is substantially encompassed by claim 7

Claim 44 is substantially encompassed by claim 8

Claim 45 is substantially encompassed by claim 9

Claim 46 is substantially encompassed by claim 10

Claim 47 is substantially encompassed by claim 11

Claim 48 is substantially encompassed by claim 12

Claim 49 is substantially encompassed by claim 13

Claim 50 is substantially encompassed by claim 6

Claim 51 is substantially encompassed by claim 7

Claim 52 is substantially encompassed by claim 8

Claim 53 is substantially encompassed by claim 9

Claim 54 is substantially encompassed by claim 10

Claim 55 is substantially encompassed by claim 11

Claim 56 is substantially encompassed by claim 12

Claim 57 is substantially encompassed by claim 13

Claim 58 is substantially encompassed by claim 6

Claim 59 is substantially encompassed by claim 7

Claim 60 is substantially encompassed by claim 8

Claim 61 is substantially encompassed by claim 9

Claim 62 is substantially encompassed by claim 10

Claim 63 is substantially encompassed by claim 11

Claim 64 is substantially encompassed by claim 12

Claim 65 is substantially encompassed by claim 13.

It would have been obvious to one skill in the art to claim the invention as shown in the pending application as a variation of claims for esthetic reasons.

6. Claims 34-65 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26-45 of copending Application No. 10/601,866. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 34 is substantially encompassed by claim 26 except for some minor modifications. Similarly,

Claim 35 is substantially encompassed by claim 27.

Claim 36 is substantially encompassed by claim 28

Claim 37 is substantially encompassed by claim 29

Claim 38 is substantially encompassed by claim 30

Claim 39 is substantially encompassed by claim 31

Claim 40 is substantially encompassed by claim 32

Claim 41 is substantially encompassed by claim 33

Claim 42 is substantially encompassed by claim 36

Claim 43 is substantially encompassed by claim 37

Claim 44 is substantially encompassed by claim 38

Claim 45 is substantially encompassed by claim 39

Claim 46 is substantially encompassed by claim 40

Claim 47 is substantially encompassed by claim 41

Claim 48 is substantially encompassed by claim 42

Claim 49 is substantially encompassed by claim 43

Claim 50 is substantially encompassed by claim 26

Claim 51 is substantially encompassed by claim 27

Claim 52 is substantially encompassed by claim 28

Claim 53 is substantially encompassed by claim 29

Claim 54 is substantially encompassed by claim 30

Claim 55 is substantially encompassed by claim 31

Claim 56 is substantially encompassed by claim 32

Claim 57 is substantially encompassed by claim 33

Claim 58 is substantially encompassed by claim 36

Claim 59 is substantially encompassed by claim 37

Claim 60 is substantially encompassed by claim 38

Claim 61 is substantially encompassed by claim 39

Claim 62 is substantially encompassed by claim 40

Claim 63 is substantially encompassed by claim 41

Claim 64 is substantially encompassed by claim 42

Claim 65 is substantially encompassed by claim 45.

It would have been obvious to one skill in the art to claim the invention as shown in the pending application as a variation of claims for esthetic reasons.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 23-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti et al in view of Applicant's admitted prior art fig. 6 and fig. 7.

As per claim 23, Alamouti et al discloses a circuit fig. 4 having a correction circuit (53 and 54) coupled to receive a first input signal 51 from a first antenna 31 of an external source 10 and a second input signal 52 from a second antenna of an external source 10, the first and the second input signals corresponding to the same datum see table 1 s0 and s0*, the correction circuit (53 and 54) producing a first symbol estimate in response to the first symbol and the second symbol estimate see col. 4, lines 25-27 and col. 6, lines 63-65; combining circuit 55 coupled to receive a plurality of symbol estimates from estimator 53 including the first symbol estimate and coupled to receive a plurality of second symbol estimates including the second symbol estimate from estimator 54, the plurality of first symbol estimates corresponding to a respective plurality of signal paths see fig. 4 the combining circuit 55 producing a first symbol signal and a second symbol signal in response to the plurality of first and second symbol estimates see fig. 4, the plurality of symbol estimates corresponding to a respective

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plurality of signal paths and producing a first symbol signal in response to the plurality of symbol estimates see output of detector 56.

However, as acknowledge by the comment dated October 7, 2003, Alamouti does not explicitly teach that the mobile antenna is arranged to receive a plurality signals from each remote antenna. Applicant's admitted prior art teaches a mobile antenna is arranged to receive a plurality signals from each remote antenna see page 3, lines 3-9. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Alamouti so as to enhance mitigation of multipath fading.

As per claim 24, Alamouti further teaches a circuit 56 considered as the claim combining circuit coupled to receive a plurality of first symbol estimates see output of estimator 53 including the first symbol estimate and coupled to receive a plurality of second symbol estimates see output of estimator 54 including the second symbol estimate, the combining circuit producing a first symbol signal see the first out put of detector 56 in response to the plurality of first symbol estimates and producing a second symbol signal see output of the detector 56 in response to the plurality of second symbol estimates.

As per claim 25, it would have been obvious to one skill in the art at the time of the invention to form the combining circuit and the correction circuit on a single integrated circuit in order to minimize cost.

As per claim 26, it is well known in the art to format a signal by including a pilot symbol, a transmit power control symbol, a rate information symbol and payload. Given that it would have been obvious to one skill in the art to format

the first and second signal in such a manner so as to be compliant with existing communication standard.

The same comment applies to claim 27.

As per claim 28, it would have been obvious to one skill in the art to configure Alamouti in such a way to have a total diversity of each of the first and second symbols of at least twice the number of transmitting antennas so as to satisfy system design requirements.

As per claim 29, it would have been obvious to one skill in the art to configure Alamouti in such a way as to receive the first and second signals as WCDMA signal t so as provide Alamouti with flexibility to process signals from different users.

As per claim 30 see claim 28.

As per claim 31, it would have bee obvious to one skill in the art to configure Alamouti to receive the first and second signals over a common channel so as to reduce the complexity of the receiver as signals received from different channels would have required a more complex receiving circuit.

As per claim 32, it would have bee obvious to one skill in the art to configure Alamouti to receive the first and second signals over a common frequency band so as to reduce the complexity of the receiver as signals received from different frequency band would have required a more complex receiving circuit.

As per claim 33, the first input signal comprises data symbol and the second input signal comprises a complex conjugate of the data symbol see table 1, s0 and s0*.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-3086. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jean B Corrielus
Primary Examiner
Art Unit 2637
6/10/05